

REMARKS

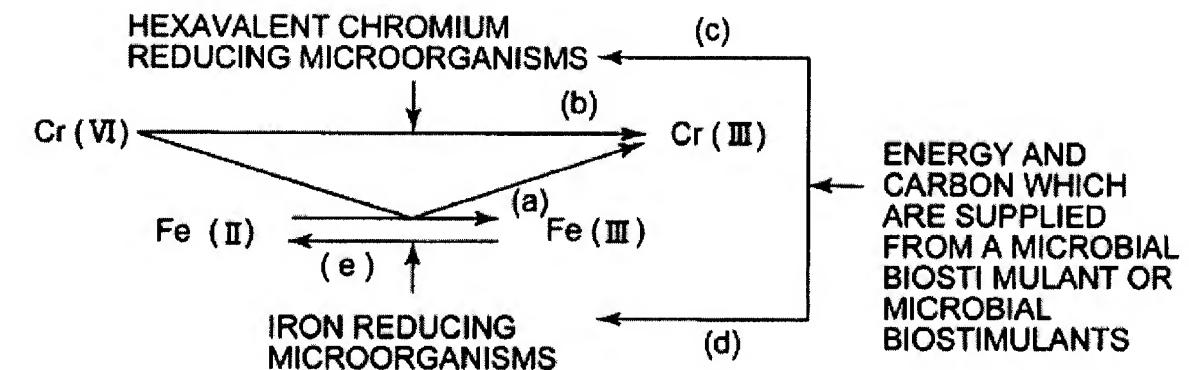
Review and reconsideration on the merits are requested.

Claims 1 and 2 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Support is found, for example, by reference to Figs. 1 and 2 and accompanying disclosure in the specification.

Claim 1 (decontaminating agent) is limited to ferrous iron. As claimed in claim 3 depending from claim 2 (decontaminating method), the decontaminating agent comprises ferrous iron in a hexavalent chromium decontaminating effective amount.

Fig. 2 is a schematic view of a case where a decontaminant comprising ferrous iron and a microbial biostimulant is used. The ferrous iron reduces hexavalent chromium to trivalent chromium, and the ferrous iron itself is converted to ferric iron. On the other hand, the microbial biostimulant added together with the iron functions as sources of carbon and energy supply to propagate and activate indigenous hexavalent chromium reducing microorganisms. Further, indigenous iron reducing microorganisms are propagated and activated by the microbial biostimulant, to reduce the ferric iron to ferrous iron. The ferrous iron resulting from the reduction reaction can be used again as a hexavalent chromium reducing agent, so as to exhibit its effect over a long period of time. See paragraph [0022].

FIG. 2



Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,303,367 to Kataoka et al.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

Kataoka et al. concerns cleaning of medium contaminated with halogenated organic compounds widely used as a degreasing agent in the metal, electronic component and dry-cleaning industries. That is, the target contaminant is halogenated organic compounds such as perchloroethylene, trichloroethylene, etc. Accordingly, the microorganisms utilized in Kataoka et al. are those capable of dehalorespiration. In other words, such microorganisms are capable of using the halogenated organic compounds for respiration.

Kataoka et al. employs the reduced form of iron, but not the oxidized form of iron. Importantly, as described at column 24, lines 4-6 of Kataoka et al.:

Namely, a ferrous salt such as FeO_4 and a ferric salt such FeCl_3 do not decompose tetrachloroethylene.

Thus, Applicants respectfully dispute that Kataoka et al. teaches the use of ferrous sulfate in its decontamination mechanism.

To more clearly distinguish over Kataoka et al., claim 1 has been amended to delete "iron (0)" as an essential component of the decontaminating agent. Moreover, to the extent that some ferrous iron may be present in a culture medium of Kataoka et al. (although not used in the decontamination mechanism), claims 1 and 2 have been further amended to recite that the ferrous iron is present in a hexavalent chromium decontaminating effective amount.

The subject matter of claim 2 (method for decontaminating soil, groundwater or sediment contaminated with hexavalent chromium) is not at all described in Kataoka et al. Specifically, there is no disclosure in Kataoka et al. of adding a decontaminating agent comprising at least one of iron (0) and ferrous iron in a hexavalent chromium decontaminating effective amount. Moreover, there is no disclosure in Kataoka et al. of adding a biostimulant in an amount effective for propagation and activation of indigenous hexavalent chromium reducing microorganisms and iron reducing microorganisms. Furthermore, there is no disclosure in Kataoka et al. of a decontaminating agent acting in cooperation with indigenous hexavalent chromium reducing microorganisms to chemically and biologically reduce hexavalent chromium to trivalent chromium. Moreover, there is no disclosure in Kataoka et al. of a decontaminating agent acting in cooperation with indigenous iron reducing microorganisms to regenerate ferrous iron oxidized by chemical reduction of hexavalent chromium.

Regarding addition of a decontaminating agent comprising iron (0) as claimed in claim 2, the iron (0) reduces hexavalent chromium to trivalent chromium and the iron itself is converted to ferrous iron. The ferrous iron in turn reduces hexavalent chromium, and is converted to ferric

iron. Ferrous iron is then regenerated by action of indigenous iron reducing microorganisms, as above. See Fig. 1 and paragraph [0021].

For the above reasons, it is respectfully submitted that the present claims define novel subject matter, and withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested.

Withdrawal of all rejections and allowance of claims 1-3 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

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